OPERATION MANUAL

JEROME® J505
MERCURY VAPOR ANALYZER

August 2014

Firmware v1.1X

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JEROME® J505
Mercury Vapor Analyzer
Operation Manual

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All section numbers, titles and page numbers in **BOLD** in this manual are hyperlinks and can be clicked to simplify navigation within the PDF version of the manual. The BACK button found in most PDF software programs is also very helpful when navigating using the hyperlinks.

An up-to-date electronic copy of this manual can be found at www.azic.com

Call AZI Customer Service at (800) 528-7411 or (602) 470-1414 if you have any questions.
If you prefer, you may send e-mail to support@azic.com

1. UNPACKING THE INSTRUMENT

This manual contains details that will optimize the results and the life of your instrument. Read and refer to the manual for complete details on operation, maintenance and troubleshooting, and data output.

The Jerome® J505 is easy to operate and ready for use upon receipt from the factory.

- Remove the instrument from the packing material.

Retain all packaging materials for any future shipment of the instrument. If the instrument is returned to AZI for any reason, it must be placed in the original packaging materials that have been tested and proven to be effective protection during shipment.

- Check for any damage and confirm receipt of all parts on your packing list. Contact Arizona Instrument Customer Service at (800) 528-7411 or (602) 470-1414 if you have any questions.
- The included 12VDC power adapter utilizes 100 to 240VAC, 50-60 Hz.

2. WARNINGS & REPACKING

- The instrument is designed for ambient air monitoring.

The J505 is for <u>non-condensing</u> gaseous vapor use only. DO NOT expose the probe or instrument's intake to any liquid, dust, or other foreign material. DO NOT obstruct the intake port, as this could cause reading errors and damage to the flow control system.

- The instrument's light source contains a small amount of elemental mercury. Call or email AZI Customer Service for a copy of the MSDS or for other questions.
- To maximize the life of the light source, turn off the instrument when it will not be used for an extended period of time.
- In case of emergency or instrument failure, disconnect the instrument from the power supply.
- If the instrument is not used as specified by the manufacturer, then protection provided by the instrument may be impaired.
- The instrument is not explosion proof.
- Call AZI Customer Service at 800-528-7411 or 602-470-1414 or go to the AZI website www.azic.com for Return Material Authorization (RMA) information prior to returning a unit.
- Boxes and packing materials for all shipments are available from AZI.
- Pack the instrument only in a Jerome® shipping container.

AZI WILL NOT BE RESPONSIBLE FOR SHIPPING DAMAGE. IF YOU RETURN THE INSTRUMENT IMPROPERLY PACKAGED OR SHIPPED, YOU SHOULD INSURE IT FOR FULL VALUE.

3. INTRODUCTION

The Jerome® J505 Mercury Vapor Analyzer is an ambient air analyzer with a range of 0.05 to 500 micrograms of mercury vapor per cubic meter (µg/m^3 Hg). The instrument uses atomic fluorescence spectroscopy for mercury analysis, which allows the detection cell to be simpler, smaller, more durable and lighter weight than competing spectroscopy instruments. A smaller optical cell also requires less flow to purge the system, allowing the J505 to run at a lower flow rate than competing spectroscopy instruments. A low flow rate is essential for accurate low-level mercury detection because higher flow reduces the ability to pinpoint the source and dilutes the sample stream, negatively affecting instrument accuracy.

CAUTION
The J505 is for <u>non-condensing</u> gaseous vapor use only.
DO NOT expose the probe or instrument's intake
to any liquid, dust, or other foreign material.

The J505 is designed for easy operation for quick and accurate analysis of mercury vapor levels. It has few maintenance requirements. However, please take a moment to read this manual before operating the instrument. If you have any questions about your application or operation, please call AZI Customer Service at (800) 528-7411 or (602) 470-1414 or e-mail support@azic.com for assistance.

Features

- Lower detection levels than the previous generation analyzers.
  - Resolution is 0.01µg/m^3 (10ng/m^3) in Standard test mode.
- 3 test modes:
  - Standard for normal sampling or detection of EPA or ATSDR cleanup levels,
  - Quick for faster sampling, and
  - Search for scanning an area to locate the source of contamination.
  - Test mode is easily selected from the Main screen with the MODE softkey.
- Choice of measuring units for results:
  - Nanograms per cubic meter (ng/m^3),
  - Micrograms per cubic meter (µg/m^3), or
  - Milligrams per cubic meter (mg/m^3).
  - Measuring units are easily selected from the Main screen with the UNITS softkey.
- 3.5 inch (9 cm) color LCD display.
  - High brightness backlight for easier readability.
  - Readings are in 1/4 inch (6 cm) tall font for easy readout.
  - Main display shows sample value, date and time, USB status, battery life, charging status, current test site, and user selected test mode and units.
- User interface includes easy to use menu system.

- Integrated data logging stores all test results (except in Search mode).
  - Stored test results are easily viewed on the display screen with their test site.
  - Average value and standard deviation can be computed on a user-selectable range of results.
  - A range of results can be saved to a USB flash drive in a comma-delimited format for easy import into Microsoft Excel®.
- Each test result can be identified with a test site.
  - Test sites are user programmable. The active test site is selected from a list, and a list of predetermined sites can be entered and easily reused.
  - An optional USB keyboard can be used for menu navigation and text entry. The F1-F4 keys on the keyboard can operate the softkeys on the instrument.
- Unattended Autosample at intervals from 1 to 120 minutes.
- Two user programmable alarm levels.
  - When a programmed alarm level is exceeded, an audible alarm sounds, the test result is displayed in red, and test records saved to the USB flash drive are tagged with "ALARM."
- Battery operation for 10 or more hours.
  - Charging time is 3 hours for a fully discharged battery.
  - Charge the battery at room temperature (≤ 30 °C or 86 °F) for optimum performance.
  - 12VDC power adapter utilizes 100 to 240VAC, 50-60 Hz.

Applications

- Regulatory detection compliance
- Regulatory cleanup compliance
- Ambient air analysis
- Quality control
- Scrubber efficiency testing
- Accuracy check for other mercury vapor monitors and control systems
- Mercury vapor source detection
- Leak detection

4. TECHNICAL SPECIFICATIONS

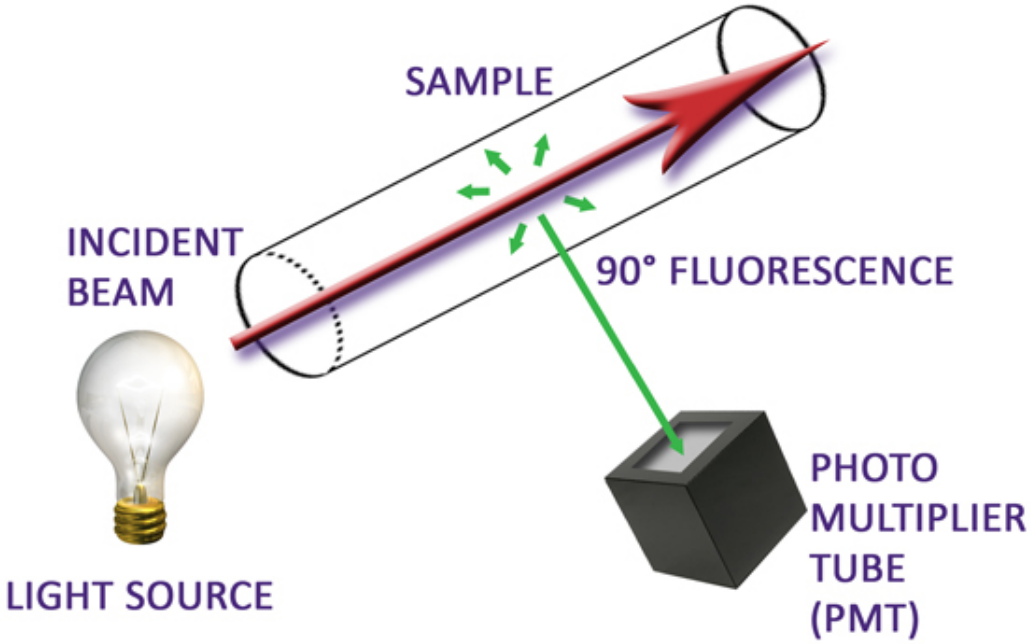
Test Mode	Units:	ng/m^3	$\mu g/m^3$	mg/m^3
Standard	Range	50 to 500,000	.05 to 500	0.00005 to 0.50000
		($0.05\ \mu g/m^3 \pm 0.033\ \mu g/m^3$ to $500\ \mu g/m^3 \pm 40\ \mu g/m^3$)		
	Resolution	10	0.01	0.00001
Quick	Range	100 to 500,000	0.1 to 500	0.0001 to 0.500
	Resolution	100	0.1	0.0001
Search	Range	100 to 500,000	0.1 to 500	0.0001 to 0.500
	Resolution	100	0.1	0.0001
Typical Test Time	Standard	28 seconds		
	Quick	16 seconds		
	Search	8 seconds for first reading then continuous 1 second updates		
Power requirements		Internal battery (NiMH) with 10+ hours of operation 12VDC power adapter runs on 100-240VAC, 0.8A, 50-60Hz Battery charges in 3 hours or less Charge the battery at room temperature (≤ 30 °C or 86 °F) for optimum performance. (Note: Battery will not charge if battery temperature > 40 °C)		
Operating environment		5 to 45 °C, non-condensing, non-explosive		
Dimensions		12in L x 6.2in W x 8.4in H (30.5cm L x 15.7cm W x 21.3cm H)		
Weight		6.5 pounds (3.0 kilograms)		
Display		3.5 inch (9 cm) color LCD display. High brightness backlight		
Unattended Autosample		Available in intervals of 1, 2, 5, 10, 15, 20, 30, 45, 60, 90 or 120 minutes		
Data storage capacity		Up to 10,000 test results 100 test sites		
USB		USB port located on rear of instrument Test results and calculations saved to USB flash drive Menu navigation, text entry, and softkey operation with optional USB Keyboard		
Certifications		UL Listing: 61010, CE		

Accuracy and Precision (Standard mode):

Gas Level	Accuracy	Precision (RSD)
$0.3\ \mu g/m^3$	± 15%	15%
$1\ \mu g/m^3$	± 10%	7%
$25\ \mu g/m^3$	± 10%	5%
$100\ \mu g/m^3$	± 10%	3%

5. PRINCIPLE OF OPERATION

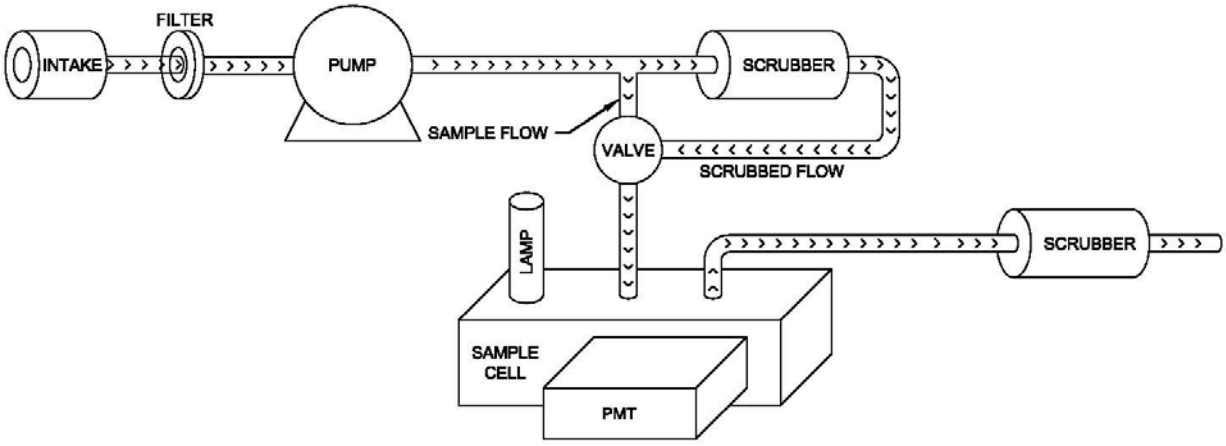
The J505 uses atomic fluorescence spectroscopy for mercury analysis. As shown below, a mercury light source is energized to emit light at a 254nm wavelength into a sample cell. Mercury atoms absorb light with a 254nm wavelength. When a mercury atom in the sample cell absorbs the light, it is re-emitted at the same wavelength. A photo multiplier tube (PMT) is used to measure the light emitted at 90° to the source, which correlates to mercury concentration.



During instrument operation, ambient air is drawn through the intake by the pump at a nominal flow rate of one liter/minute. The sampled air then flows through either a scrubber filter and then into the sample cell or directly into the sample cell, as controlled by the valve, as shown below.

In the sample cell, the air sample is exposed to light with a 254nm wavelength. Any mercury present will absorb and then re-emit the light, and the re-emission is measured by the PMT. The PMT response during scrubbed flow is subtracted from the response during sample flow. The result correlates to mercury vapor concentration, which is calculated and displayed.

After analysis, the sample air is routed through the exhaust scrubber to absorb any mercury before the sample stream is discharged.

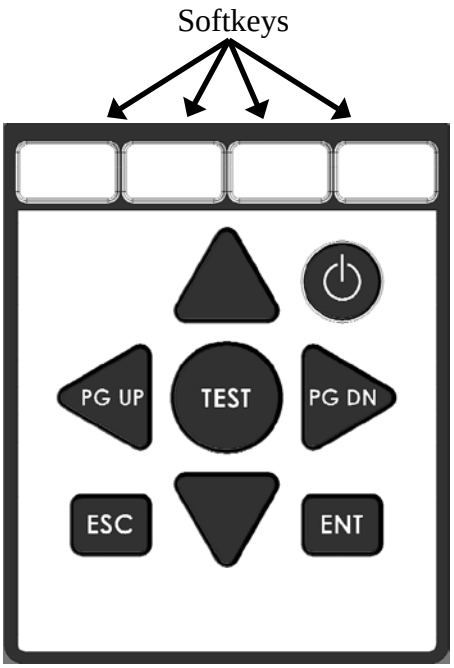


The instrument is designed and calibrated to elemental mercury vapor only.

6. INSTRUMENT OPERATION

6.1. Keypad

The keypad contains the power key ⏻ just to the right of the ▲ key. To turn on the instrument, hold down the power key until the display comes on. Turn off the instrument if it is not going to be used for an hour or more. Note, the instrument display remains on during charging.



Tests can be started with the TEST key on the keypad or the TEST button on the handle.

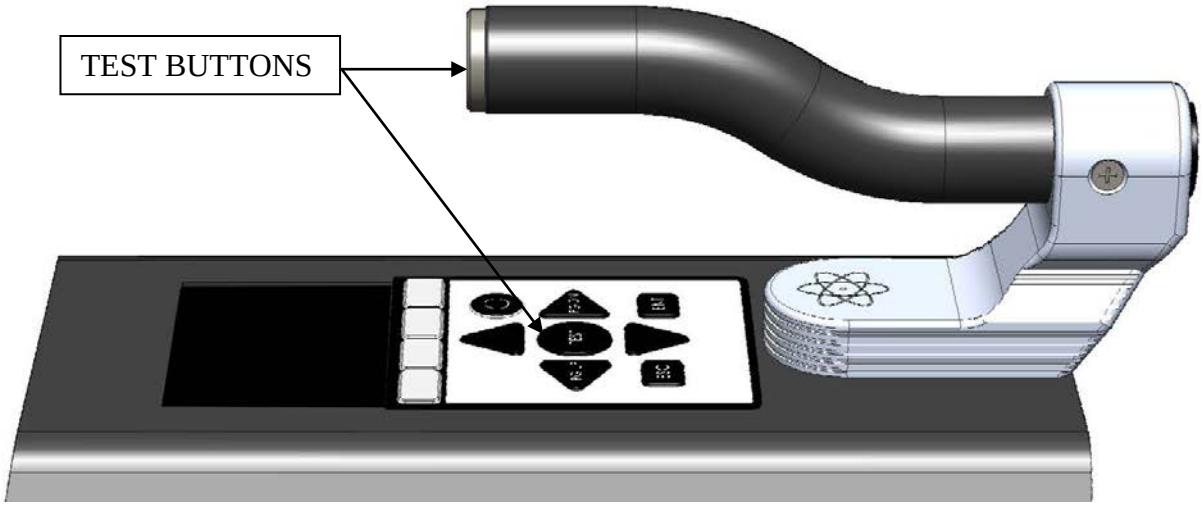
At the top of the keypad, just below the screen are four softkeys. The softkey functions change based on which screen is active.

Use the ▲, ▼, ◄, and ► keys to navigate menus and screens.

Use the ENTer key to select a menu item or field. While editing a field, ENTer saves the value.

Use the ESCape key to exit back to the prior menu. While editing a field, ESCape aborts the editing without saving any changes.

The ◄ and ► keys are also PG UP (Page Up) and PG DN (Page Down), which can be helpful for navigating through a long list of test results.



6.2. Power On and Warmup

Press the power key ⏻ to power on the instrument. The software revision is displayed on the startup screen.

A calibration reminder may be displayed right after the startup screen; if so, call AZI Customer Service at 800-528-7411 or 602-470-1414 or e-mail support@azic.com to schedule instrument calibration.

The screen displays Warmup for about 6 minutes while the instrument is warming up and stabilizing. When the progress bar fills, Ready is displayed, and the instrument is ready for testing.

PROGRESS BAR

6.3. J505 Back Panel Connections

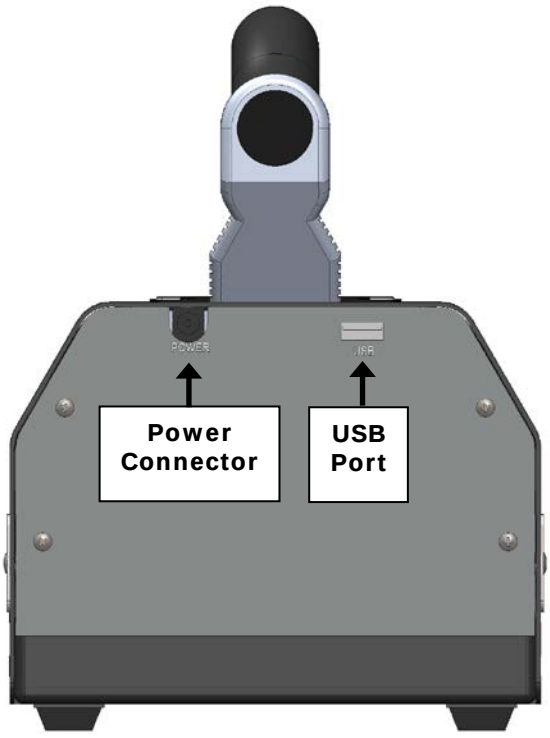
The power connector and the USB port are located at the rear of the instrument, as shown below.

POWER CONNECTOR - Connect the AC Adapter Power Supply to the power connector on the instrument, and use the line cord to provide AC power to the instrument and recharge the battery.

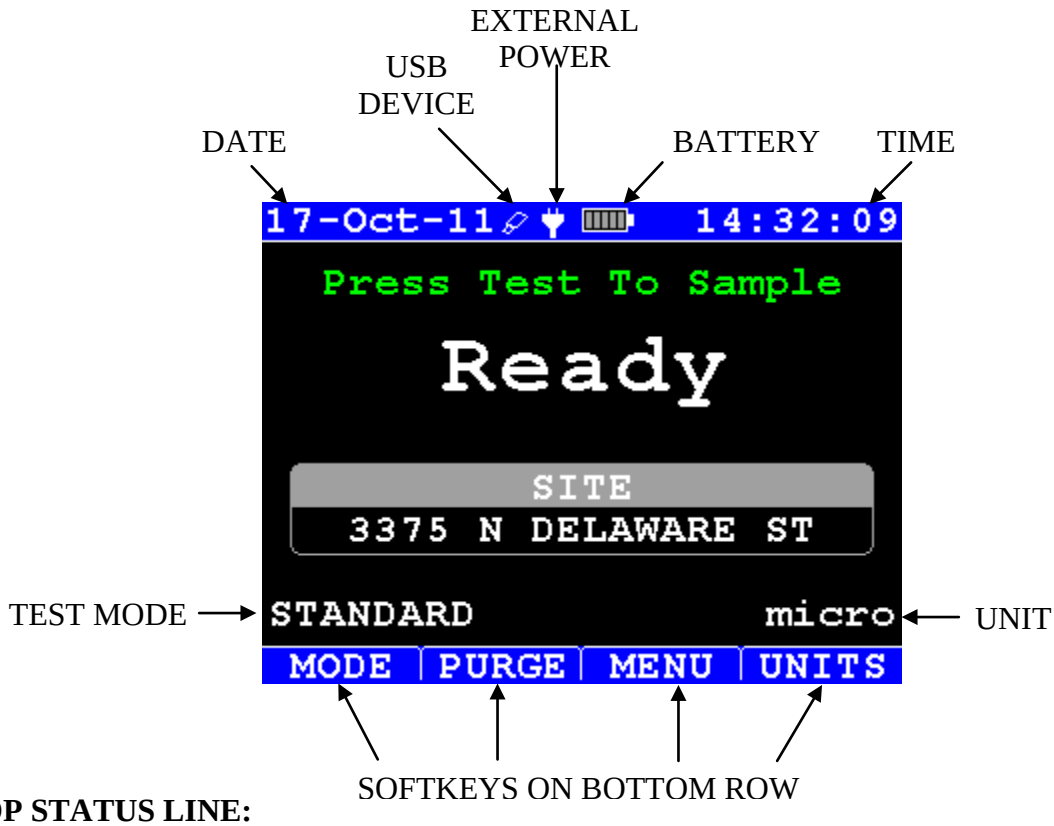
USB PORT – A USB keyboard or a USB flash drive can be installed in the USB port.

A USB keyboard can be used for menu navigation, text entry and soft key operation. Refer to **§6.4 Main Screen** for more information on the J505 menu structure and soft keys.

Test results and any calculations performed on the test results by the instrument can be exported to a USB flash drive. Refer to **§6.10 USB Test Result Output** for more information.



6.4. Main Screen



TOP STATUS LINE:

- **Date**: Displayed in day-month-2 digit year (dd-mmm-yy) format.
- **USB Device**: A flash drive or keyboard icon will be displayed when a corresponding device is detected by the instrument. USB hubs are not supported.
- **External Power**: A plug icon will show when external power is connected.
- **Battery**: The battery charge status is displayed by the number of the bars (5 maximum). During charging, the battery outline is red. Charging is initiated if external power is connected and the battery charge is < 95%. Charging takes 3 hours or less.
- **Time**: Displayed in a 24-hour format.

MODE:
The instrument has three test modes. The currently selected mode is indicated:

- **STANDARD** for normal sampling or detection of EPA or ATSDR cleanup levels,
- **QUICK** for faster sampling, and
- **SEARCH** for scanning an area to locate the source of contamination.

UNIT:
The instrument displays in three different measuring units. The currently selected unit is indicated:

- **nano**: the instrument will display in nanograms per cubic meter (ng/m^3)
- **micro**: the instrument will display in micrograms per cubic meter ($\mu g/m^3$)
- **milli**: the instrument will display in milligrams per cubic meter (mg/m^3)

PROGRESS BAR: (shown on Warmup screen)
The progress bar is displayed for instrument warmup progress, purging progress and test progress.

SITE:
The active test site is displayed. The active site is stored with the test result. The active site is changed through MAIN MENU→SITES.

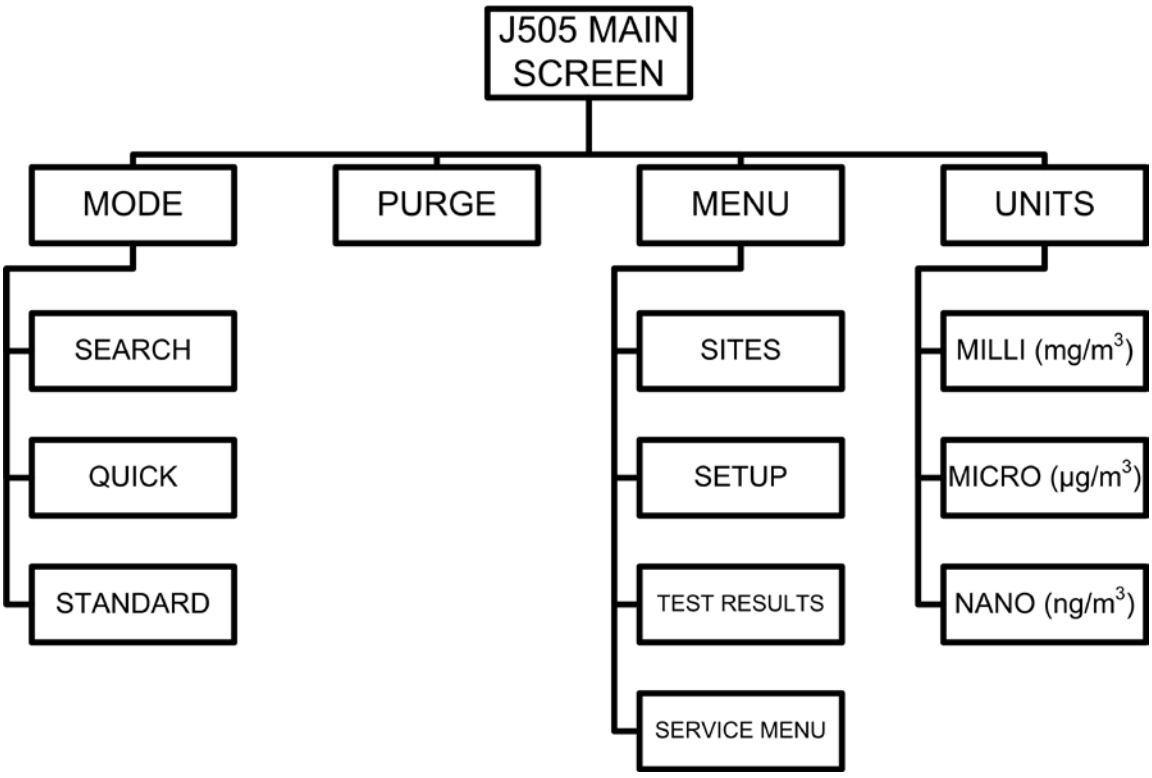
SOFTKEYS:
The softkeys on the Main Screen and their functions are described below. If a USB keyboard is connected, the F1-F4 keys on the keyboard can be used to operate the softkeys.

- **MODE** – Changes the test mode of the instrument. The currently selected test mode is displayed above the MODE softkey.

- **PURGE** – Turns the pump on (if off). "Purging" and a progress bar are displayed on the instrument and the pump runs for two (2) minutes. Using the Purge function is recommended for flushing the sample cell when switching from high to low levels of mercury. Sampling can be initiated at any time during the purging or while the pump is runnings. After two minutes of purging, the display will change to "Ready," and the instrument will beep, while the pump continues to run for an additional two minutes. The pump also remains running for two minutes after a test. If the pump is off prior to a test, the test time for the next test will be increased to allow the instrument to capture an initial zero reading.

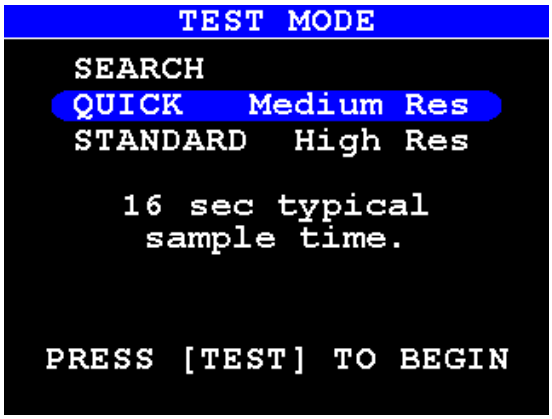
- **MENU** – Displays the MAIN MENU.

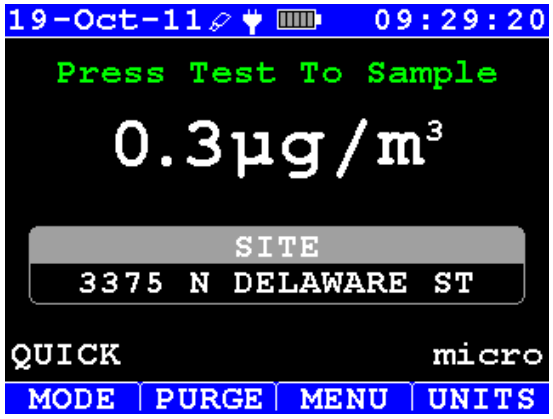
- **UNITS** – Changes the measuring unit. Test results are stored in the currently selected unit, which is indicated above the UNITS softkey.

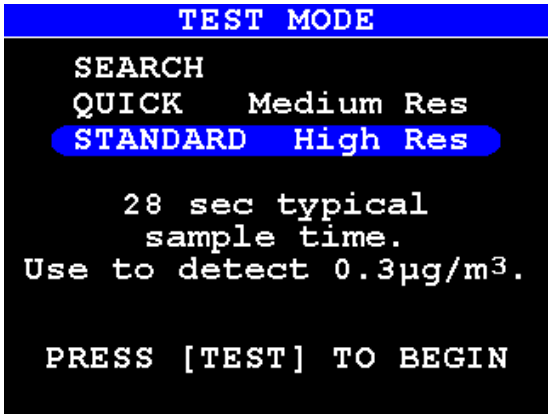


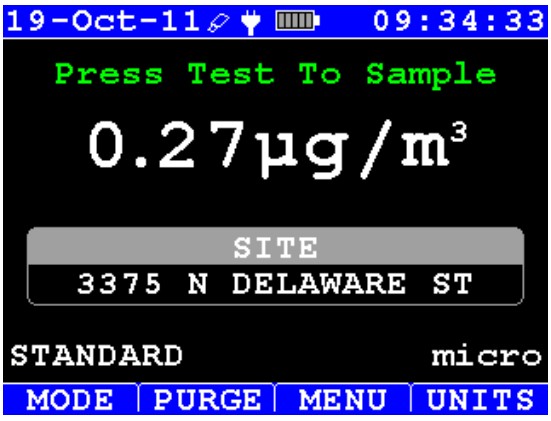
6.5. Test Modes

The J505 has three test modes: Search, Quick and Standard. The desired test mode is selected using the MODE softkey on the Main Screen. As shown below, Standard provides the greatest resolution by utilizing a slightly longer sample time. Refer to **§4 TECHNICAL SPECIFICATIONS** on page **7** for complete details on the differences in sample time and resolution between the test modes.

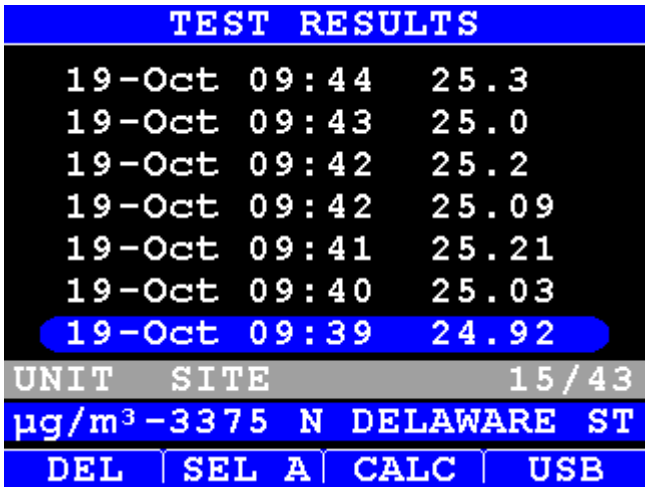








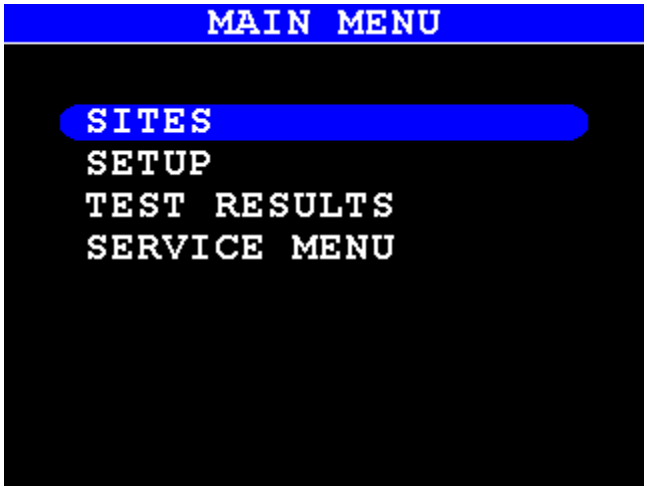
The difference in resolution between Quick and Standard test mode is also reflected in the number of decimal places shown on the Test Results screen, as shown below.



Search mode provides a stream of continuous relative readings that are displayed on the instrument but not saved in data storage.

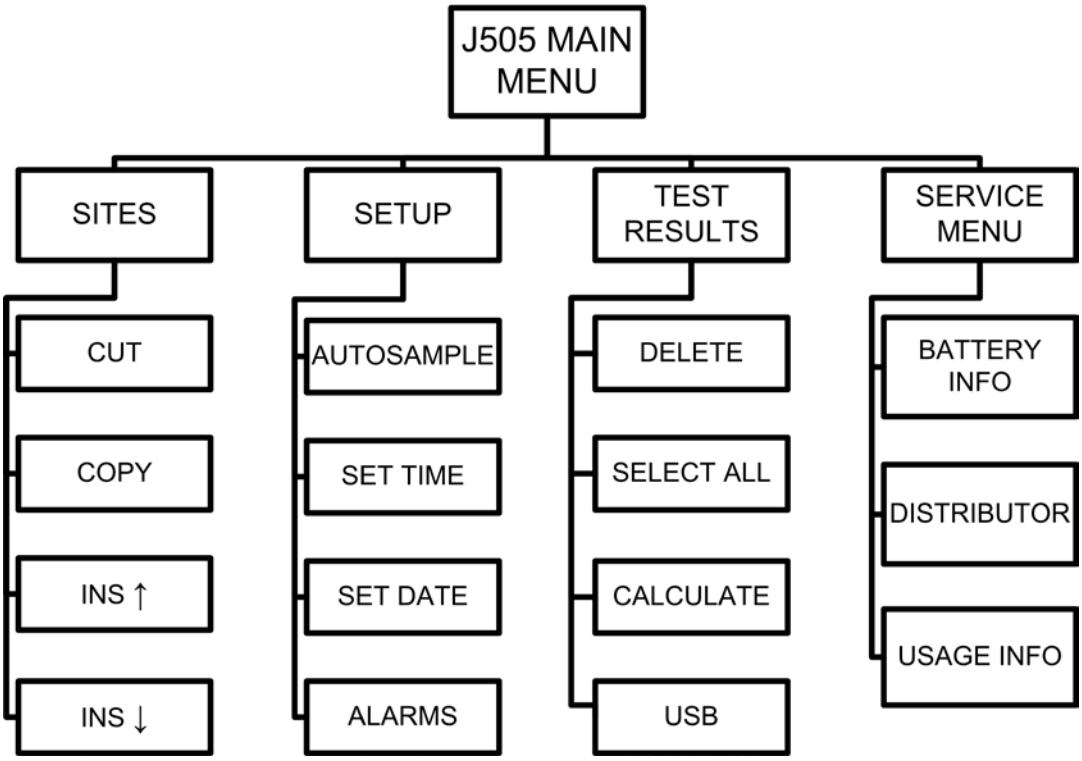
After Standard or Quick mode testing has determined that an area is contaminated, Search mode can be used to quickly locate the source of contamination. In Search mode, an initial zero reference reading is obtained, and then continuous readings are updated each second. Over a period of minutes, the mercury readings will drift slowly lower until clean air is sampled or testing is halted and restarted. The drift occurs only in Search Mode. Standard and Quick modes provide accurate individual readings.

6.6. Main Menu

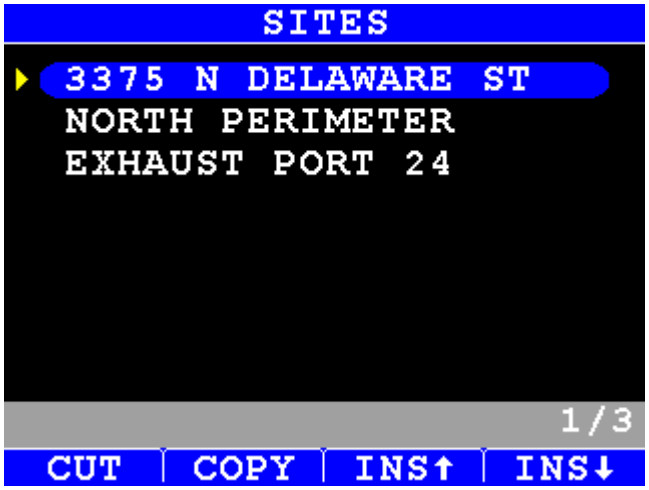


Use ▲ and ▼ keys to move the selection bar and then press ENTer to select the desired menu.

Press ESCape to exit the Main Menu and return to the Main screen.



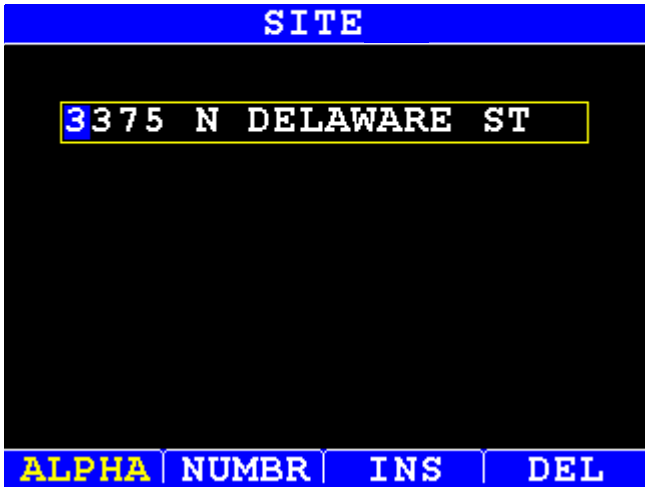
6.7. Sites List



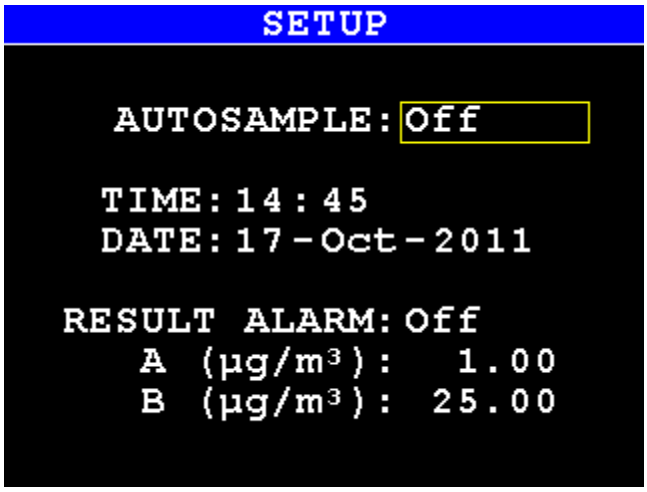
Sites are created and edited through this screen and can be up to twenty (20) characters long. The J505 can store up to 100 sites.

The triangle indicates the active test site. The active site is saved with each corresponding test result. If desired, a technician name, test group or other identifier can be used instead of a site name. The site list is manipulated as follows:

- Use COPY and INS↑ (Insert above) or INS↓ (Insert below) to add a site.
- Use CUT to delete a site.
- Use CUT and INS↑ or INS↓ to move a site.
- Press ENTer, then ESCape to make the selected test site active.
- Press ENTer twice to edit the selected site.
  - Use ◄ and ► to select which digit to change.
  - For the selected digit, select ALPHA to select alphabetic digits or select NUMBR to select numerical digits, then use ▲ or ▼ to scroll through the alphabet or numbers.
  - Use INSert to insert a space.
  - Use DELete to delete a digit.
  - Use ENTer/ESCape to save or abort the edit.
  - Connect a USB keyboard to the USB port to make editing test site names quick and easy. The USB port is located on the back of the instrument.



6.8. Setup Screen

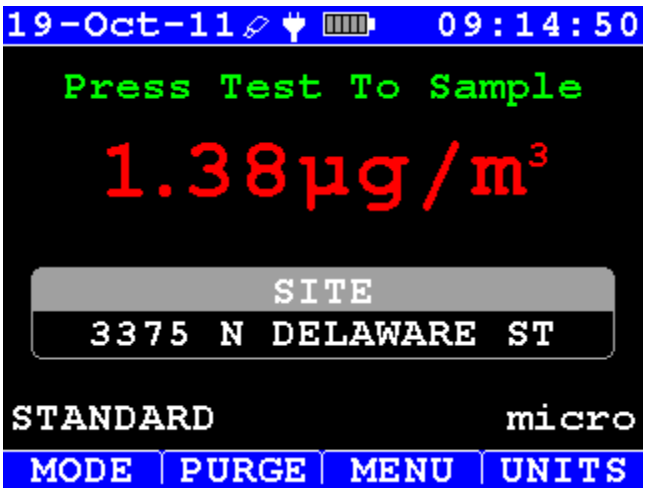


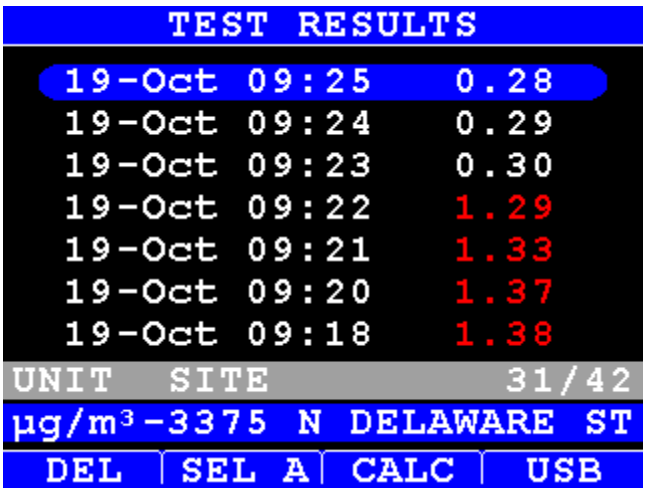
Instrument configuration is changed through this screen. Use the arrow keys (▲, ▼, and ◄, ►) to move to the field to be edited. The currently selected field is indicated by the yellow highlight box. Then press ENTer to edit the field. Use the arrow keys to edit the value as desired, then press ENTer again to accept the changes or ESCape to exit without saving.

The editable fields are as follows:

- AUTOSAMPLE: The J505 can be set to take samples automatically at an interval of 1, 2, 5, 10, 15, 20, 30, 45, 60, 90 or 120 minutes. The Main Screen must be displayed for autosampling to take place and autosampling will start when the clock reads :00 seconds.
- TIME/DATE: Use to set the time and date. Enter the time using a 24-hour format then press ENTer. After inputting the time and date, ESCape to the Main Screen to set these values.
- RESULT ALARM: The user may choose one of two separate high limit alarms. Either alarm may be set to any value, but typically one is set to the residential cleanup level and one to the industrial cleanup level. If the selected high limit is exceeded, an audible alarm occurs, the word "ALARM" is added to the record saved to a USB flash drive, and the result is displayed in red on the Main Screen and the Test Results screen, as shown below. The alarm level values are always specified in µg/m^3 when input and displayed on this screen. However, the alarm capabilities are still functional when the J505 is set to display in ng/m^3 or mg/m^3; the specified alarm values are appropriately adjusted internally so that alarm level readings trigger the alarm regardless of the display units in use.

  For reference: 1 mg/m^3 = 1,000 µg/m^3 = 1,000,000 ng/m^3.

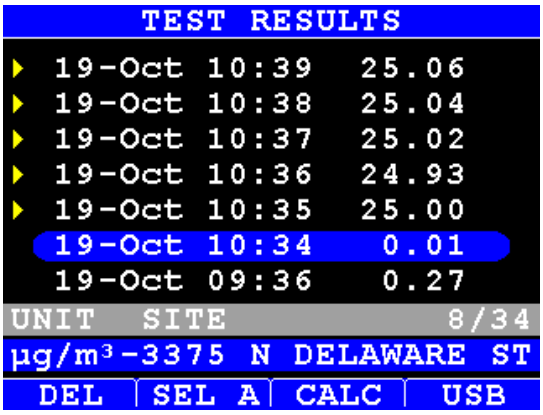


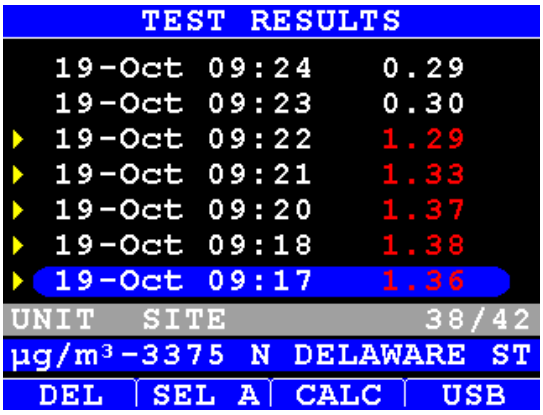


6.9. Test Results List

Test results are viewed, analyzed or saved to a flash drive on this screen.

The UNIT and SITE of the selected test result are displayed at the bottom of the screen, along with the test number and the total number of tests. ALARM readings are displayed in red.



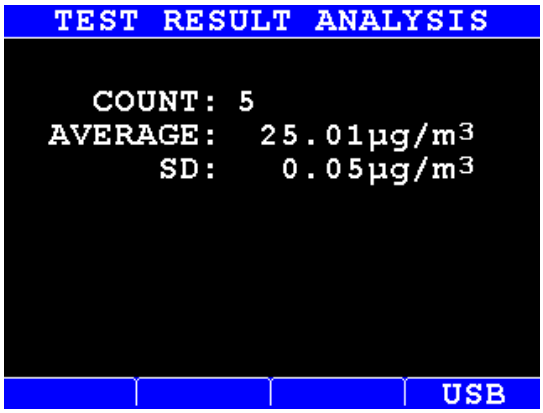


The following options are available:

- A range of test results are selected by pressing ENTer on each desired result. To unselect, press ENTer again.
- DELete deletes a single or selected range of test results from memory. The data memory allows storage of up to 10,000 results. If the memory becomes full, the user is warned and new test results are displayed but not saved. After deleting tests, the instrument power must be cycled to make the cleared memory available for storage again.
- SEL_A selects all or unselects all test results.
- CALC calculates the average and standard deviation (SD) of the selected results and displays them as shown below. If necessary, when a group of readings is selected for analysis, they are converted to a common set of units for display.
- USB saves a single or selected range of results to a connected USB flash drive in a text file named 505#####.TXT, where 505##### is the instrument serial number. Install the USB flash drive in the USB port on the rear of the instrument, select the desired test results and press the USB soft key to save the selected data to the flash drive. If the text file already exists on the USB flash drive, the instrument will prompt to APPEND, OVERWRITE or CANCEL.

On the Test Result Analysis screen:

- USB saves the selected test results and the displayed test result analysis to a flash drive.
- If the text file already exists on the USB flash drive, the instrument will prompt to APPEND, OVERWRITE or CANCEL.



6.10. USB Test Result Output

Test results and analyses written to a flash drive are saved in a file named 505#####.TXT, where 505##### is the instrument serial number. The file is readily opened with spreadsheet software for further analysis if desired. If the file already exists on the flash drive, the instrument will prompt to APPEND, OVERWRITE or CANCEL.

The data file is formatted as shown in the example below. Each set of data will begin with the standard four line header shown, indicating test results or test result analysis, the date and time the file was written, and the instrument serial number. Following the header, the column labels are displayed, followed by the selected data. ALARM readings will have "ALARM" in the ALARM column. If the results were analyzed, the count, mean and standard deviation will be listed following the data that was analyzed, as shown below.

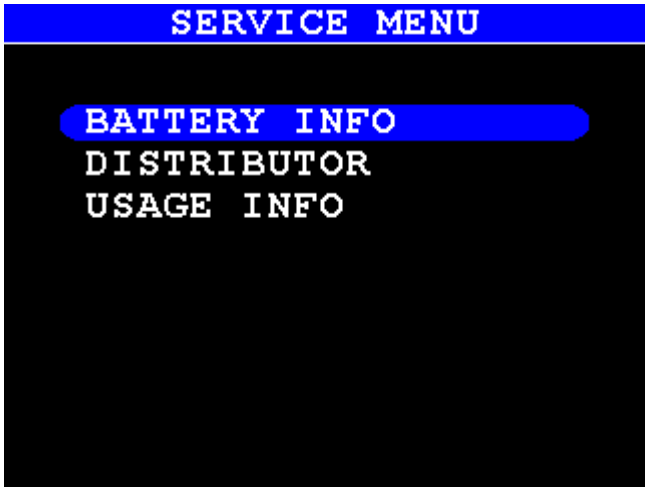
If data is appended to an existing file, a dashed line will separate each set of data in the file.

```
--------------------------------------------------------------------------------
J505 TEST RESULTS
DATE: 19-Oct-11
TIME: 10:43:55
SERIAL NUMBER: 50500003
--------------------------------------------------------------------------------
DATE, TIME, RESULT, UNIT, ALARM, SITE
--------------------------------------------------------------------------------
19-Oct-11,10:35:29, 25.00,µg/m3,,3375 N DELAWARE ST
19-Oct-11,10:36:29, 24.93,µg/m3,,3375 N DELAWARE ST
19-Oct-11,10:37:29, 25.02,µg/m3,,3375 N DELAWARE ST
19-Oct-11,10:38:29, 25.04,µg/m3,,3375 N DELAWARE ST
19-Oct-11,10:39:29, 25.06,µg/m3,,3375 N DELAWARE ST
--------------------------------------------------------------------------------
J505 TEST RESULT ANALYSIS
DATE: 19-Oct-11
TIME: 10:23:07
SERIAL NUMBER: 50500003
--------------------------------------------------------------------------------
DATE, TIME, RESULT, UNIT, ALARM, SITE
--------------------------------------------------------------------------------
19-Oct-11,09:17:29,  1.36,µg/m3,ALARM,3375 N DELAWARE ST
19-Oct-11,09:18:29,  1.38,µg/m3,ALARM,3375 N DELAWARE ST
19-Oct-11,09:20:29,  1.37,µg/m3,ALARM,3375 N DELAWARE ST
19-Oct-11,09:21:29,  1.33,µg/m3,ALARM,3375 N DELAWARE ST
19-Oct-11,09:22:29,  1.29,µg/m3,ALARM,3375 N DELAWARE ST

COUNT: 5
 MEAN:   1.35µg/m³
   SD:   0.04µg/m³
```

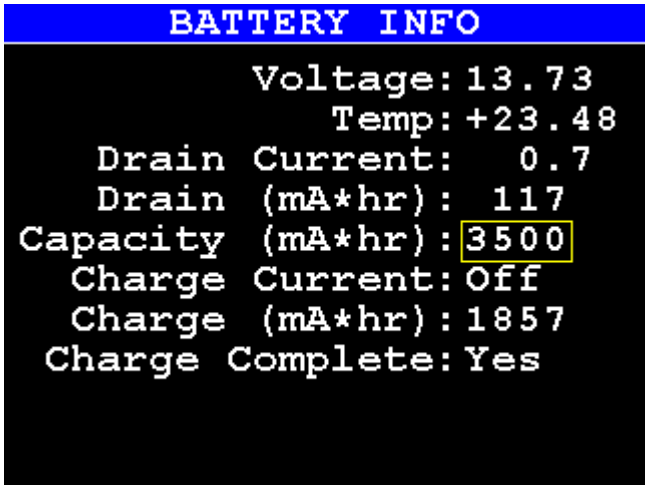
6.11. Service Menu

The Service Menu is used to view detailed battery information, access distributor contact information or view instrument usage statistics, as explained in the following sections.



6.12. Battery Info Screen & Battery Management

The Battery Info screen displays detailed battery status.



The most important information is the "Capacity (mA*hr)". A battery with greater than 2,700 mA*hr typically provides 10 or more hours of instrument operation when autosampling at five-minute intervals. As the battery ages, the capacity slowly drops.

The "Drain (mA*hr)" and "Capacity (mA*hr)" are used to determine the battery charge level, which is displayed on the Main Screen as bars (5 maximum) in the battery icon.

The battery capacity is calculated when the battery is fully discharged.
To update the battery capacity once a year:

- Turn on the instrument,
- Fully charge the instrument,
- Disconnect external power,
- Allow the instrument to fully discharge

When fully discharged, the instrument will automatically save the battery capacity and turn off. Afterwards, charge the instrument and use as normal.

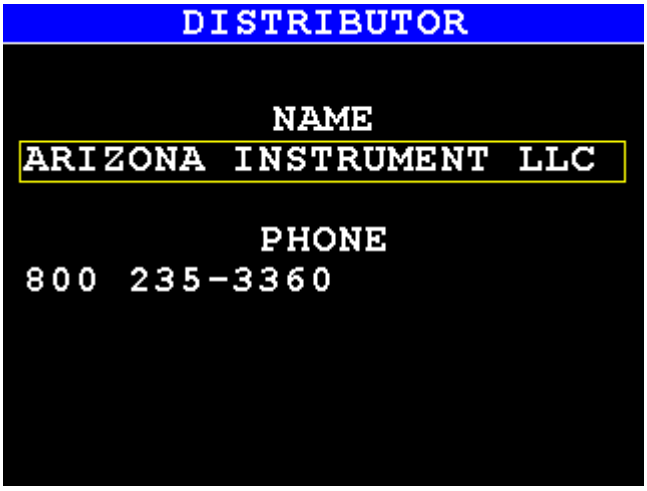
Note: the battery will not charge if the battery temperature is greater than 40 °C.

The battery pack uses NiMH chemistry, which will self-discharge over several months. If the instrument is not used for a month or longer, plug the instrument in every month to recharge or leave it plugged in when not in use. Leaving the instrument unplugged for several months will damage the battery capacity.

6.13. Distributor Information Screen

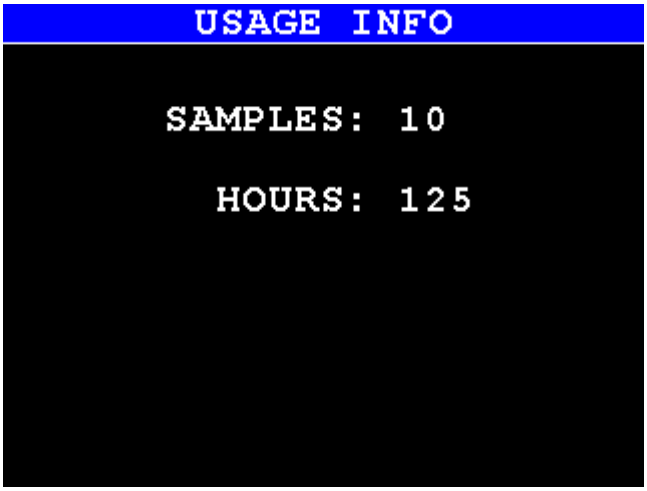
The Distributor screen displays a name and contact phone number for Arizona Instrument or one of our authorized distributors or instrument rental companies.

The information on this screen is edited in the same fashion as other text fields, using either the instrument keypad or a USB keyboard.



6.14. Usage Info Screen

The Usage Info screen displays instrument samples and hours powered up since the last factory service, as shown.



7. MAINTENANCE

7.1. Zero Air Filter

The Zero Air Filter (AZI P/N Z2600 3905) can be used to verify proper instrument operation. The Zero Air Filter removes mercury vapor from the air sample. Readings with the filter installed should be less than 0.05 µg/m^3. If readings with the filter installed are not below 0.05µg/m^3, change the intake fritware filter. See **7.3 Flow System** on page **22** for instructions.

7.2. Preventive Maintenance Schedule

To keep the instrument operating at peak performance, follow the maintenance schedule below as a guide. Because maintenance is more a function of application and amount of use rather than time, your requirements may be different from the listed schedule. Call AZI Customer Service at 800-528-7411 or 602-470-1414, or e-mail support@azic.com for additional guidance for your environment and operation.

PART/COMPONENT	MAINTENANCE CYCLE	REFER TO PAGE
Battery	See section **6.11 Battery Info Screen & Battery Management** for guidelines.	Page 19
Change intake fritware	Weekly or as needed	Page 22
Factory calibration and filter replacement	Annually	

There are no user serviceable components or assemblies inside the J505 and the instrument should not be opened except by factory-authorized technicians at Arizona Instrument. Unauthorized opening of the instrument will void the instrument warranty.

7.3. Flow System

The flow system is the crucial link between the sample cell and the test environment. For the instrument to perform correctly, the flow system must be properly maintained. The only user maintainable component of this system is the intake fritware filter.

Replace the fritware filter once each week or as needed. In dusty environments, the fritware filter may need to be replaced on a daily basis. Replacement fritware filters are available from AZI Consumable Sales at 800-528-7411 or 602-470-1414 as AZI part number 345-0241.

- NOTE: It is not necessary to open the instrument to change the fritware filter.
- Turn the instrument off.
- Unscrew the knurled intake by hand and remove it. (The fritware is housed in the knurled intake). ***(Fig. 1)***
- Insert the tweezers included with the instrument into the small end of the knurled intake and gently apply pressure to push the old fritware filter out through the larger end of the intake. ***(Fig. 2).*** If necessary, use the tweezers to finish pulling the fritware filter out through the larger end of the intake.
- Insert a new fritware filter through the large end of the intake so that the smoother, flatter side of the fritware will be facing out of the instrument. Keep the fritware flat and gently press it into the threaded hole using the backend of the tweezers. ***(Fig. 3)***. Re-installing the intake in the next step will properly position the fritware behind the o-ring, so it is not necessary to press the fritware all the way in by hand.
- Screw the knurled intake back on to the J505. ***(Fig.4)*** This will seat the fritware behind the o-ring in the intake.

Figure 1

Figure 2

Figure 3

Figure 4

The other internal filters should only be replaced by the factory. Opening the instrument case or attempting to change or remove the internal filters will void the instrument warranty.

CAUTION

Internal filters contain Resisorb®. Used filters will contain trace amounts of Mercury also. Call AZI Customer Service at 800-528-7411, 602-470-1414, or e-mail support@azic.com for a copy of the Resisorb® MSDS or for other questions.

8. CALIBRATION

8.1. Factory Calibration Service

The interval between calibrations depends upon the application and frequency of use; however, the recommended interval is every 12 months.

The instrument has been factory calibrated using laboratory equipment containing NIST traceable permeation tubes. In order to calibrate the instrument, a sophisticated calibration system is required that ensures stability of the calibration gas source, eliminates any pressure in the calibration gas stream, and controls the temperature of the calibration environment.

We strongly recommend you take advantage of our calibration and maintenance service at Arizona Instrument. Service includes filter replacement, component testing, and instrument calibration to NIST traceable standards. A certificate of calibration is issued from AZI when your instrument is factory calibrated.

For scheduling and shipping authorization, call AZI Customer Service at (800) 528-7411 or (602) 470-1414 or visit our website at www.azic.com.

9. INTERFERENCES

In general, interferences to the Jerome® J505 Mercury Vapor Analyzer are minimal. Testing has shown a negligible instrument response to chlorine, ammonia, humidity/water vapor and gasoline vapors.

While instrument response to humidity is negligible, moving the instrument from an air conditioned environment to one of higher temperature and humidity may cause condensation on some of the optical surfaces. For best results, it is recommended to allow the instrument to equilibrate to ambient conditions before testing. The PURGE softkey can also be used to flush the instrument and accelerate environmental acclimation.

The J505 has a slight response to acetone vapor. In an environment with a high concentration of gaseous acetone (≈1100 ppmv acetone), instrument response is approximately 100 nanograms/m^3.

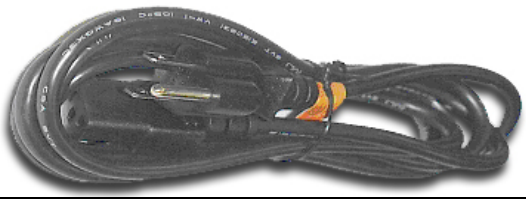
10. TROUBLESHOOTING

Symptom	Possible Cause	Solution
Power Problems		
Instrument does not turn ON or turns off automatically	Discharged battery	Recharge the battery for 3 hours.
Display Warnings and Error Messages		
Error	Light source or component failure	Call AZI Customer Service at 800-528-7411 or 602-470-1414.
	If testing in very cold conditions, this error may occur due to insufficient lamp warmup time.	Cycle power to the instrument off and then back on and allow it to continue warming up.
TEST RESULT MEMORY LOW	Over 9,000 test results are stored in the instrument.	Informational message only.
TEST RESULT MEMORY FULL READING NOT SAVED or TEST RESULT MEMORY FULL AUTOSAMPLE DISABLED	10,000 test results are stored in the instrument and there is not room for additional test results	Save data to USB flash drive if desired, then delete data. See **6.8 Test Results List** on page **17**.
USB FILE FAILURE	Unformatted or corrupt flash drive	Format flash drive or try different flash drive
Instrument Performance		
Readings with the Zero Air Filter installed are not less than 0.05µg/m^3.	Contaminated intake fritware filter.	Change intake fritware filter. See **7.3 Flow System** on page **22** for instructions.
	Contaminated flow system	Set the instrument to Autosample at 1-minute intervals for 1 hour to purge the flow system. See §**6.7** on page **16**.

11. ACCESSORIES & MAINTENANCE PARTS

PART #		ITEM DESCRIPTION
Y505-0901		**J505 Accessory Kit**
	200-0235	Line Cord, 115 VAC - USA and Canada (3ft)
alternate	200-0003	Line Cord, 220-240 VAC – England
alternate	200-0008	Line Cord, 220-240 VAC – Europe
	345-0241	Fritware for J505 (1 pack of 5 fritware filters)
	690-0012	Tweezers
	990-0219	USB Flash Drive
	990-0244	AC Adapter Power Supply (power supply/charger)
	1400 2002	Probe
	1400 3010	Tubing Adapter, 1/4” to 1/8”
	Z2600 3905	Zero Air Filter

11.1. Spare Parts and Accessories

200-0235 (200-0003) (200-0008)	**100-120 VAC Line Cord** (220 VAC Line Cord – UK) (220 VAC Line Cord – Europe)	
345-0241	**Fritware for J505 (pack of 5)**	
690-0012	**Tweezers**	
990-0219	**USB Flash Drive**	

990-0230	**USB Keyboard**	
990-0244	**AC Adapter Power Supply (supply/charger)**	
990-0246	**Soft Handle Grip** Use a few drops of dish soap to install, then let dry completely before use	
990-0247	**Soft Carrying Case** Includes a shoulder strap and pockets to hold supplies or accessories	
1400 2002	**Probe**	
1400 3010	**Tubing adapter**	
Y990-0234	**Mercury Spill Kit**	
Z2600 3905	**Zero Air Filter**	

For current prices and delivery information, call AZI Customer Service at (800) 528-7411 or (602) 470-1414.

12. WARRANTY

Arizona Instrument LLC (seller) warrants to buyer that Jerome® products delivered pursuant to this agreement shall, at the time of delivery, and for a period of one (1) year thereafter (the Internal Battery Pack, where applicable, is warranted for a period of ninety [90] days only), be free from defects in material or workmanship and shall conform to seller's specifications or such other specifications as seller has agreed to in writing. Seller's obligations with respect to claims under this warranty shall be limited, at seller's option, either to the replacement of defective or non-conforming product or to an appropriate credit for the purchase price thereof subject to the provisions of seller's Warranty Policy as amended from time to time, said Policy being incorporated herein by reference.

Returned products under warranty claims will be shipped to seller's plant by buyer at buyer's expense and shall be accompanied by a statement of the reason for the return and an approved Return Material Authorization Number issued by seller. Buyer remains responsible for payment for products not accepted for warranty adjustment, handling costs, and freight costs associated therewith.

Notwithstanding the foregoing, no warranty shall be enforceable in the event that product has been subjected to environmental or stress testing by buyer or any third party without written approval of seller prior to such testing. Further, no warranty shall be enforceable if the alleged defect is found to have occurred because of misuse, neglect, improper installation, repair, alteration, accident, or improper return handling procedure by buyer. Additionally, no warranty shall be enforceable if the instrument has been opened or the instrument's internal components subjected to inspection without prior written approval of seller. **Any unauthorized opening or internal inspection of the instrument shall make this warranty null and void.**

Discontinued product is warranted only for a credit or replacement at seller's option.

THE EXPRESS WARRANTIES GRANTED ABOVE SHALL EXTEND DIRECTLY TO BUYER AND NOT TO BUYER'S CUSTOMERS, AGENTS, OR REPRESENTATIVES AND, EXCEPT FOR WARRANTY OF TITLE, IS IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE AND MERCHANTABILITY, SUCH OTHER WARRANTIES BEING SPECIFICALLY DISCLAIMED BY SELLER. IN NO EVENT SHALL EITHER PARTY'S LIABILITY FOR ANY BREACH OR ALLEGED BREACH OF THIS AGREEMENT EXCEED THE TOTAL EXTENDED PRICE OR PRICES SHOWN ON UNFILLED ORDERS, NOR SHALL EITHER PARTY BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM BREACH OR ALLEGED BREACH.

Notwithstanding the foregoing, if any product covered by order(s) placed hereunder is designated as "developmental," "prototype" or "experimental," no warranty whatsoever except a warranty of title to component materials, will be applicable thereto and buyer shall indemnify seller for any claims for liability asserted seller in connection therewith.

The foregoing state the entire liability of seller in connection with products supplied hereunder.

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Arizona Instrument LLC
Jerome® J505 Mercury Vapor Analyzer Operation Manual
Part Number 700-0130

If you have any questions regarding the operation of this instrument, please call our toll free number (800) 528-7411. Internationally, call (602) 470-1414 or fax (480) 804-0656.

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